〈SMALL-SIGNAL TRANSISTOR〉

2SC5621

FOR HIGH FREQUENCY AMPLIFY APPLICATION
SILICON NPN EPITAXIAL TYPE

DESCRIPTION

2SC5621 is a super mini package resin sealed silicon NPN epitaxial transistor.It is designed for high frequency application.

FEATURE

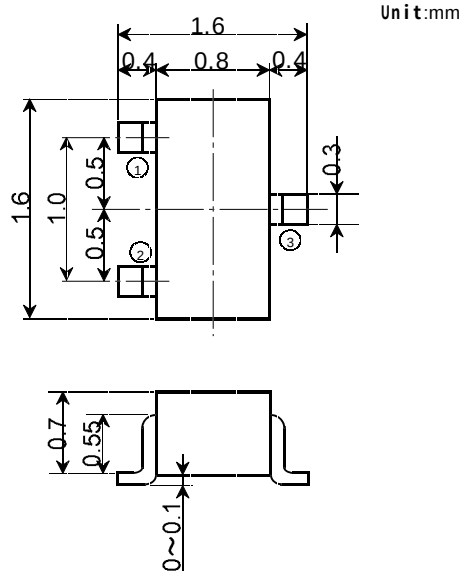
- High gain bandwidth product.
  fT=4.5GHz
- High gain,low noise.
- Can operate at low voltage.
- Super mini package for easy mounting.

APPLICATION

For TV tuners,high frequency amplifier,celluar phone system.

OUTLINE DRAWING

Unit:mm



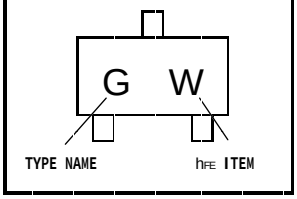
TERMINAL CONNECTOR
① : BASE
② : EMITTER
③ : COLLECTOR

EIJA:

MAXIMUM RATINGS (Ta=25°C)

Symbol	Parameter	Ratings	Unit
V_{CBO}	Collector to Base voltage	20	V
V_{CEO}	Collector to Emitter voltage	12	V
V_{EBO}	Emitter to Base voltage	3	V
I_C	Collector current	50	mA
P_C	Collector dissipation	100	mW
T_j	Junction temperature	+125	°C
T_{stg}	Storage temprature	-55~+125	°C

MARKING



ELECTRICAL CHARACTERISTICS (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
I_{CBO}	Collector cut off current	V_{CB}=10V, I_E=0mA			1.0	μA
I_{EBO}	Emitter cut off current	V_{EB}=1V, I_C=0mA			1.0	μA
h_{FE}	DC forward current gain	V_{CE}=5V, I_C=20mA	50		250	
f_T	Gain bandwidth product	V_{CE}=5V, I_E=20mA		4.5		GHz
C_{ob}	Collector output capacitance	V_{CB}=5V, I_E=0mA, f=1MHz		1.0		pF
$\|S_{21}\|^2$	Insertion power gain	V_{CE}=5V, I_C=20mA, f=1GHz	7.5	9.0		dB
NF	Noise figure	V_{CE}=5V, I_C=5mA, f=1GHz		1.5		dB

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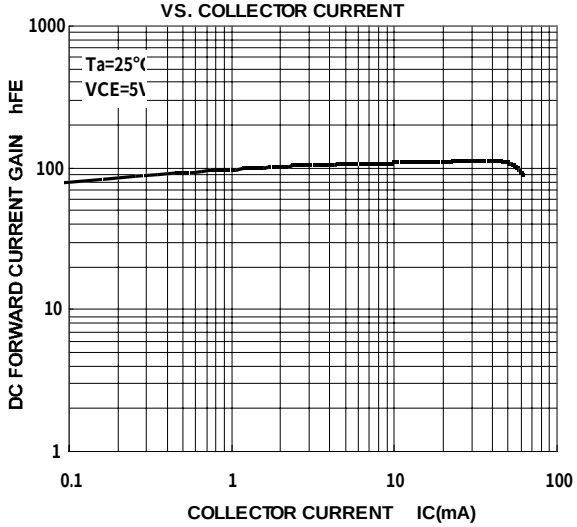
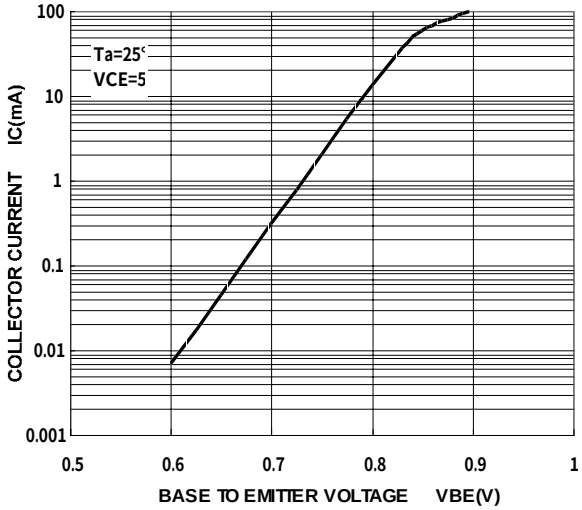
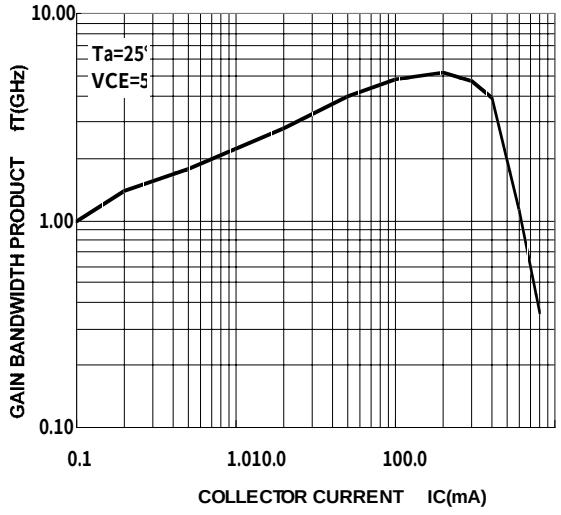
DC FORWARD CURRENT GAIN
VS. COLLECTOR CURRENT



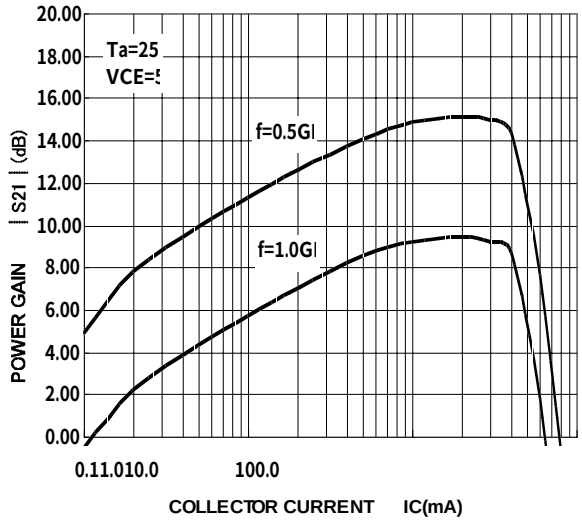
COMMON EMITTER TRANSFER



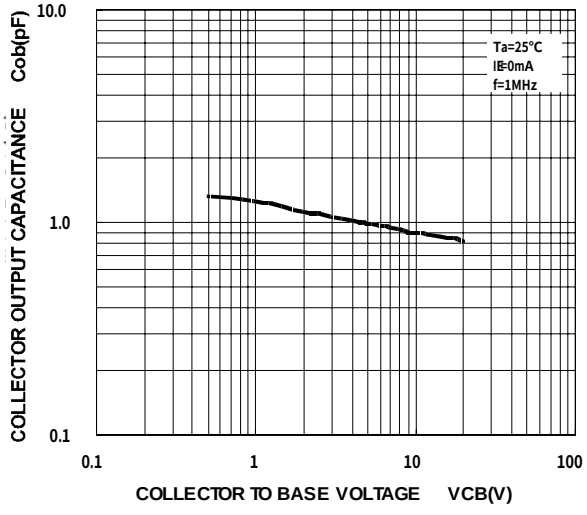
GAIN BANDWIDTH PRODUCT
VS. COLLECTOR CURRENT



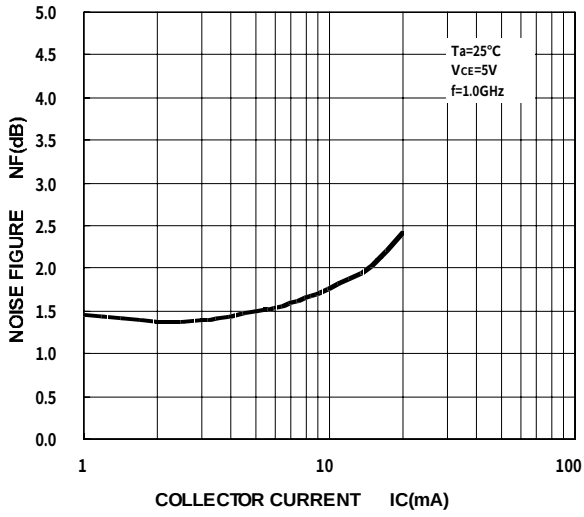
POWER GAIN VS. COLLECTOR CURRENT



COLLECTOR OUTPUT CAPACITANCE
VS. COLLECTOR TO BASE VOLTAGE



NOISE FIGURE VS. COLLECTOR CURRENT



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FOR HIGH FREQUENCY AMPLIFY APPLICATION
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S PARAMETER

VCE=5V,IC=10mA

FREQUENCY	S_{11}		S_{21}		S_{12}		S_{22}	
(MHZ)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
500.00	0.297	-155.6	0.085	63.2	5.895	86.2	0.310	-43.6
600.00	0.292	-165.3	0.100	63.9	4.977	81.4	0.308	-45.0
700.00	0.294	-172.9	0.114	65.1	4.308	77.1	0.292	-45.0
800.00	0.287	179.5	0.128	65.1	3.791	73.0	0.291	-45.7
900.00	0.285	174.2	0.143	64.7	3.413	69.3	0.290	-48.2
1000.00	0.284	168.6	0.155	64.5	3.098	65.6	0.294	-50.4
1100.00	0.285	163.2	0.169	63.7	2.833	62.5	0.294	-51.9
1200.00	0.283	158.8	0.182	63.2	2.631	59.2	0.302	-54.4
1300.00	0.287	154.2	0.197	61.9	2.440	55.9	0.303	-56.7
1400.00	0.282	150.7	0.211	61.4	2.282	53.2	0.306	-58.9
1500.00	0.278	146.5	0.222	60.8	2.142	50.2	0.307	-61.3
1600.00	0.285	142.4	0.236	59.2	2.030	47.4	0.310	-63.3
1700.00	0.286	138.8	0.249	57.9	1.923	44.7	0.321	-65.5
1800.00	0.286	135.1	0.263	56.8	1.832	42.0	0.322	-67.8
1900.00	0.288	131.4	0.274	55.8	1.751	39.5	0.325	-69.8
2000.00	0.287	128.8	0.288	55.0	1.677	37.0	0.330	-72.4

VCE=5V,IC=8mA

FREQUENCY	S_{11}		S_{21}		S_{12}		S_{22}	
(MHZ)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
500.00	0.310	-148.5	0.089	60.1	5.733	87.8	0.337	-44.9
600.00	0.305	-159.2	0.101	61.7	4.852	82.8	0.331	-46.8
700.00	0.303	-167.6	0.114	63.2	4.205	78.2	0.312	-46.4
800.00	0.294	-175.0	0.127	62.7	3.701	74.0	0.310	-47.2
900.00	0.294	178.8	0.140	63.0	3.338	70.2	0.308	-49.6
1000.00	0.290	172.6	0.154	62.8	3.028	66.4	0.310	-51.5
1100.00	0.291	167.4	0.166	61.9	2.773	63.0	0.311	-53.0
1200.00	0.290	162.3	0.181	62.0	2.572	59.6	0.318	-55.4
1300.00	0.291	157.4	0.194	60.6	2.392	56.3	0.318	-57.7
1400.00	0.286	153.5	0.206	59.9	2.232	53.5	0.317	-60.7
1500.00	0.284	149.1	0.219	59.7	2.097	50.6	0.322	-62.2
1600.00	0.289	145.3	0.233	58.6	1.989	47.7	0.323	-64.1
1700.00	0.289	141.3	0.247	57.8	1.883	44.8	0.332	-66.3
1800.00	0.292	137.4	0.258	56.8	1.797	42.2	0.335	-68.4
1900.00	0.292	133.9	0.271	55.6	1.719	39.5	0.338	-70.4
2000.00	0.292	130.5	0.284	54.6	1.642	37.0	0.342	-72.7

VCE=5V,IC=6mA

FREQUENCY	S_{11}		S_{21}		S_{12}		S_{22}	
(MHZ)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
500.00	0.343	-139.3	0.091	56.5	5.461	90.3	0.382	-46.1
600.00	0.328	-150.5	0.104	57.6	4.641	84.9	0.369	-47.9
700.00	0.323	-159.4	0.115	58.7	4.036	79.9	0.347	-47.8
800.00	0.311	-167.9	0.127	59.0	3.565	75.4	0.340	-48.4
900.00	0.309	-174.4	0.139	59.9	3.218	71.2	0.335	-50.5
1000.00	0.303	178.8	0.153	59.7	2.919	67.3	0.336	-52.7
1100.00	0.302	172.7	0.163	59.8	2.675	63.8	0.335	-54.0
1200.00	0.303	167.4	0.176	59.1	2.486	60.3	0.342	-56.5
1300.00	0.302	162.1	0.190	59.1	2.306	56.8	0.341	-58.3
1400.00	0.297	158.1	0.201	59.1	2.162	54.0	0.341	-60.2
1500.00	0.294	153.7	0.214	58.3	2.029	50.8	0.345	-62.9
1600.00	0.299	148.7	0.225	57.5	1.924	47.8	0.344	-65.1
1700.00	0.300	144.7	0.238	56.5	1.824	44.9	0.353	-66.9
1800.00	0.301	140.6	0.250	56.0	1.739	42.2	0.356	-68.9
1900.00	0.302	136.8	0.263	55.1	1.666	39.5	0.360	-70.8
2000.00	0.299	133.3	0.276	54.3	1.592	36.9	0.363	-73.1

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FOR HIGH FREQUENCY AMPLIFY APPLICATION
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S PARAMETER

VCE=5V,IC=4mA

FREQUENCY	S_{11}		S_{21}		S_{12}		S_{22}	
(MHZ)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
500.00	0.399	-126.4	0.099	51.8	4.984	94.1	0.455	-45.8
600.00	0.375	-137.6	0.110	50.9	4.260	88.1	0.439	-48.2
700.00	0.364	-148.1	0.118	52.4	3.729	82.7	0.408	-48.4
800.00	0.348	-156.9	0.127	53.4	3.306	77.7	0.397	-49.7
900.00	0.341	-164.5	0.137	53.7	2.994	73.0	0.387	-52.0
1000.00	0.332	-171.8	0.149	55.0	2.723	68.9	0.387	-54.0
1100.00	0.329	-178.6	0.159	55.1	2.502	65.0	0.383	-55.2
1200.00	0.327	175.5	0.170	55.8	2.326	61.3	0.387	-57.3
1300.00	0.325	169.3	0.180	55.1	2.162	57.5	0.383	-59.7
1400.00	0.321	165.0	0.193	56.1	2.027	54.5	0.382	-61.8
1500.00	0.318	159.9	0.203	55.7	1.905	51.2	0.385	-63.7
1600.00	0.320	154.5	0.215	55.7	1.807	48.1	0.385	-65.4
1700.00	0.322	150.2	0.226	55.4	1.715	45.0	0.393	-67.6
1800.00	0.324	145.7	0.238	54.9	1.635	42.1	0.395	-69.5
1900.00	0.324	141.4	0.250	54.8	1.564	39.4	0.397	-71.7
2000.00	0.323	137.7	0.262	54.0	1.498	36.7	0.401	-73.9

VCE=5V,IC=2mA

FREQUENCY	S_{11}		S_{21}		S_{12}		S_{22}	
(MHZ)	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
500.00	0.506	-106.9	0.120	44.1	4.062	100.4	0.593	-42.3
600.00	0.480	-118.6	0.128	42.3	3.503	94.0	0.005	-46.3
700.00	0.453	-130.6	0.133	42.1	3.115	87.7	0.004	-47.5
800.00	0.434	-139.7	0.139	42.3	2.767	82.0	0.003	-49.2
900.00	0.421	-148.4	0.144	42.3	2.519	76.7	0.003	-51.6
1000.00	0.408	-156.6	0.149	43.7	2.316	71.9	0.002	-54.1
1100.00	0.398	-164.1	0.154	44.6	2.129	67.4	0.002	-55.8
1200.00	0.391	-171.0	0.161	46.5	1.992	63.1	0.001	-58.2
1300.00	0.388	-177.9	0.168	47.2	1.857	58.9	0.001	-60.2
1400.00	0.381	176.7	0.174	48.6	1.744	55.4	0.001	-62.4
1500.00	0.377	171.4	0.183	50.1	1.643	51.8	0.001	-64.5
1600.00	0.379	165.0	0.191	50.7	1.562	48.3	0.000	-66.6
1700.00	0.380	160.0	0.202	51.9	1.481	44.9	0.000	-68.7
1800.00	0.377	154.6	0.212	52.6	1.416	41.9	0.000	-70.5
1900.00	0.380	149.2	0.223	52.9	1.357	39.0	0.000	-72.5
2000.00	0.379	145.1	0.233	53.5	1.294	36.0	0.000	-75.0

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